4-9-1998

Site-specific farming shows hidden nature of soybean cyst nematode yield losses

Gregory L. Tylka
Iowa State University, gltylka@iastate.edu

Carmen Sanogo
Iowa State University, csanogo@iastate.edu

Dean Michael Tranel
Iowa State University, dmtranel@iastate.edu

Site-specific farming shows hidden nature of soybean cyst nematode yield losses

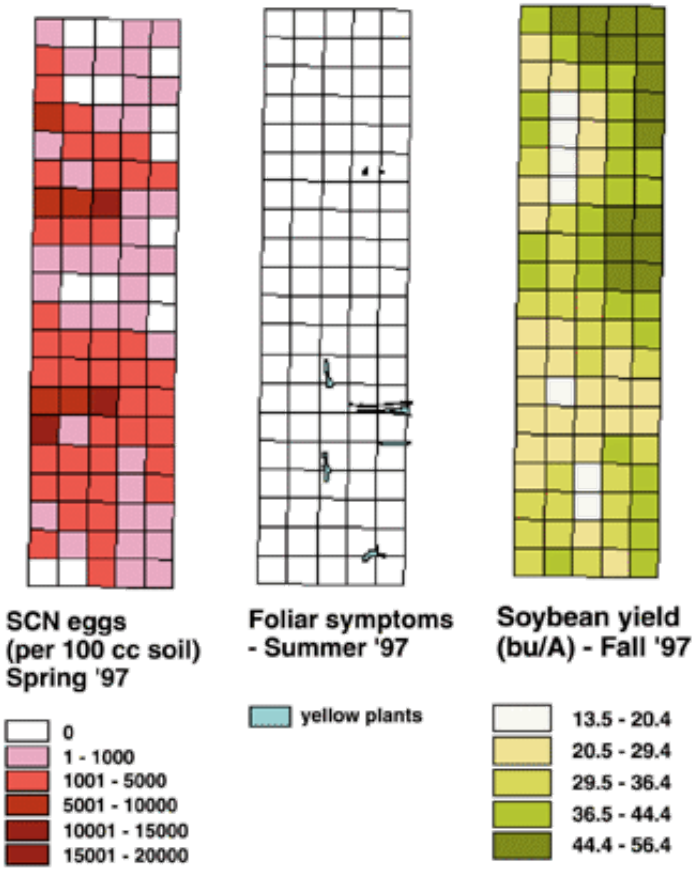
Abstract
The soybean cyst nematode (SCN) is a serious and widespread pathogen of soybeans in Iowa. In fact, results of a recent random survey in Iowa indicate that SCN may be present in nearly two-thirds of the fields in the state. Unfortunately, many growers do not realize that their fields are infested with SCN. Why? Results of an Iowa State University, soybean-checkoff-funded research project using site-specific farming technology illustrate the hidden nature of SCN yield losses in Iowa fields.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology

Site-specific farming shows hidden nature of soybean cyst nematode yield losses

The soybean cyst nematode (SCN) is a serious and widespread pathogen of soybeans in Iowa. In fact, results of a recent random survey in Iowa indicate that SCN may be present in nearly two-thirds of the fields in the state. Unfortunately, many growers do not realize that their fields are infested with SCN. Why? Results of an Iowa State University, soybean-checkoff-funded research project using site-specific farming technology illustrate the hidden nature of SCN yield losses in Iowa fields.



Research is being conducted on 50-acre study areas in two fields in southern Boone County. Although neither field was known to be infested with the nematode before the research was initiated, moderate to high SCN population densities were detected in almost every one of the half-acre cells of the study areas in both fields. In May 1997, soil samples were collected from each half-acre cell in the study area of the field planted with soybeans, and the samples were analyzed to determine the SCN population densities.

Throughout the 1997 growing season, areas of the field with visible foliar SCN symptoms (defined as areas of plants with conspicuous marginal leaf yellowing) were mapped with a hand-held global positioning system unit. The soybean yield obtained in October 1997 in the half-acre cells also were mapped.

A comparison of the grid map of the spring 1997 SCN egg population densities in the half-acre soybean cells with a map of the visible foliar SCN symptoms in the cells revealed no consistent relationship. Similarly, areas of symptoms of SCN damage did not correspond well with areas of lower soybean yields in the study area. There was a distinct, inverse relationship between May 1997 SCN egg population densities and 1997 soybean yields. Clearly, cells with higher spring 1997 SCN egg population densities produced lower soybean yields than cells with lower SCN densities, although there was a very small portion of the

study areas that exhibited symptoms of SCN damage.

There is no doubt that factors other than SCN also affected soybean yields in the study area. However, these results emphasize the fact that SCN infestations can be present in Iowa soybean fields at damaging levels without causing noticeable symptoms to the crop. The only reliable ways to determine whether a field has SCN are either to dig soybean roots and look for the SCN females attached to the roots or to have a soil sample tested for the presence of SCN. Additional information on how to scout for SCN can be obtained from ISU Extension publication IPM-47s, *Scouting for Soybean Cyst Nematode*. You can order this publication by calling the Extension Distribution Center [1] at 515-294-5247.

This article originally appeared on pages 17-18 of the IC-480 (4c Precision Ag Edition) -- April 9, 1998 issue.

Links:
[1] http://www.exnet.iastate.edu/Pages/pubs/Order.html

IOWA STATE UNIVERSITY
University Extension